RM312 Rackmount Chassis User Guide



Contents

YOUR RACKMOUNT CHASSIS

The RM312 19" rackmount chassis supports a variety of high-density system configurations and features the latest in server-chassis technology.

Features

Top Cover

- Screw-less design for easy installation and maintenance
- Quick reference guide affixed to the inside

Front Panel Controls and Indicators

- Front access USB2.0 ports offer flexibility
- Alarm mute button to disable audible warnings
- System reset button
- LEDs for system signals (power, HDD access, LAN1, LAN2, and failure event)

Hard Drive Trays

- 12 hard drive trays (may serve NAS, RAID, or media streaming applications)
- Hot-swappable for ease of use

Drive Bays

- Two external bays (one slim CD/DVD-ROM and one standard FDD)
- Internal HDD bay for operating system

Backplanes

- Supports 3pcs of 4-in-1 IDE ATA133/Ultra320 SCSI/SATA backplanes

Motherboard

- Extended ATX form factor up to 12”×13”
- Supports numerous brands (i.e. Intel® , Supermicro® , Tyan, Gigabyte™ , Asus® , etc.)

CPU

- Supports Intel® P4, Intel® DP Xeon™ , AMD Athlon™ MP, or AMD Opteron™
- Excellent thermal solution for DP Xeon up to 3.06+GHz

PSU

- Supports single or redundant 3U power supply
- Power output up to 800W (depends on power supply)

Cooling Fans

- Four 80mm ball-bearing fans (two 60mm rear fans optional)

Slot Openings

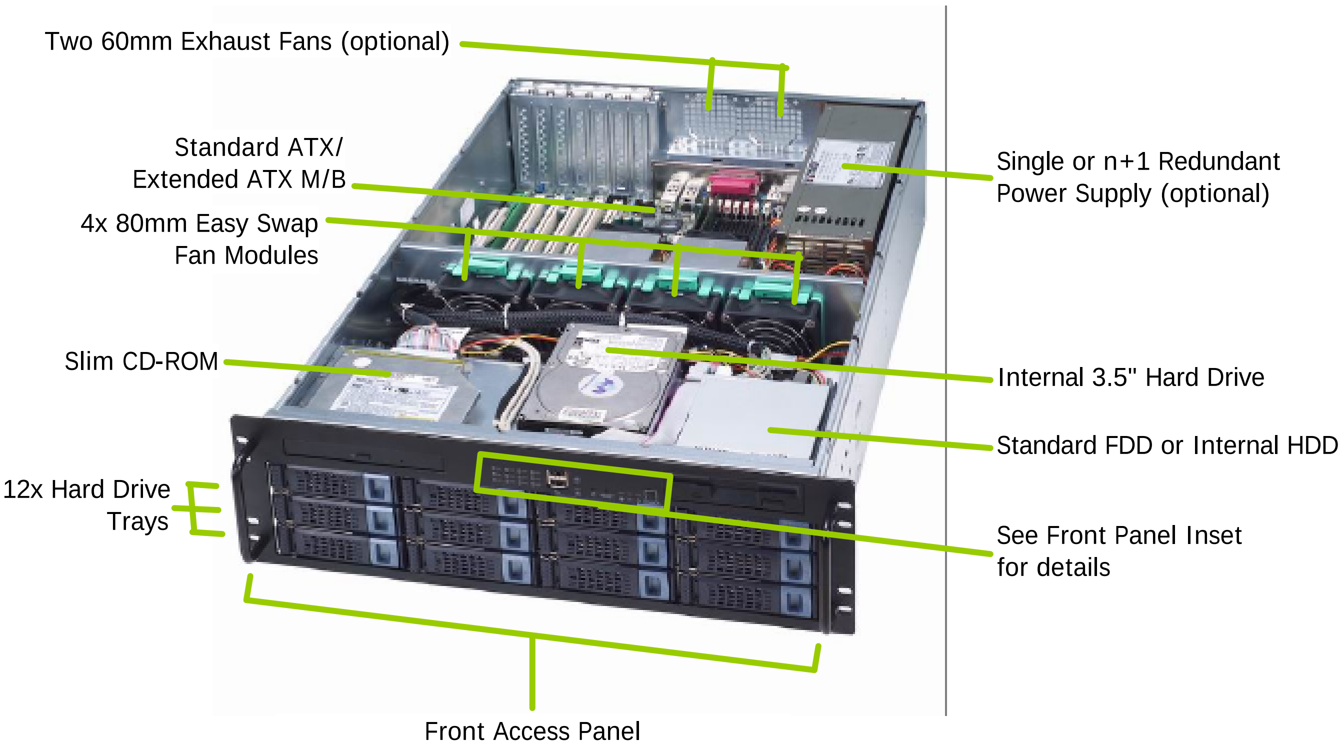
- 7 PCI expansion slots at the rear

Specifications

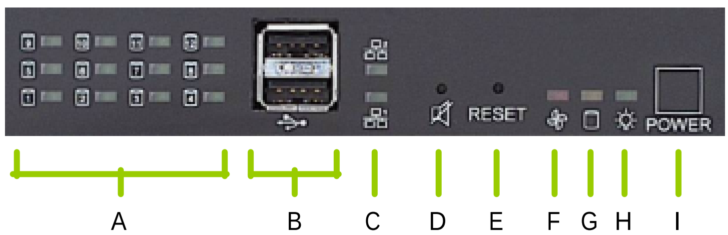
Model Name			RM312
Standard			EIA-RS310D
M/B Form Factor			Extended ATX (12"x13")
CPU Type Supported			P4/DP Xeon/Athlon MP/Opteron
Dimension (D*W*H)			660*430*176mm 26*16.9*5.2"
Drive Bays	**External**	**5.25”**	1 x slim CD/DVD-ROM
		3.5”	1 x FDD
	Internal	**3.5”**	1
	HDD Trays		12
PSU	**Form Factor**		Single or Redundant
	Watts		350W ~ 800W
Indicators			Power On/Off, HDD/LAN activity, fan failure, and overheat warning
Front Controls			Power On/Off, System Reset, Alarm Reset, and USB2.0 port x 2
System Security			N/A
Cooling Fan		**Standard**	4 × 80mm middle fans
		Optional	2 × 60mm rear fans
Slot Opening			7
Material			SGCC
Sheet Metal Thickness			1.2mm
Net Weight (chassis only)			15.1kg
Cubic Feet			5.27
Reference Container Load (single packing)		**20’**	176 units
		40’	368 units
Backplane			IDE/SCSI/SATA

Layout

Chassis

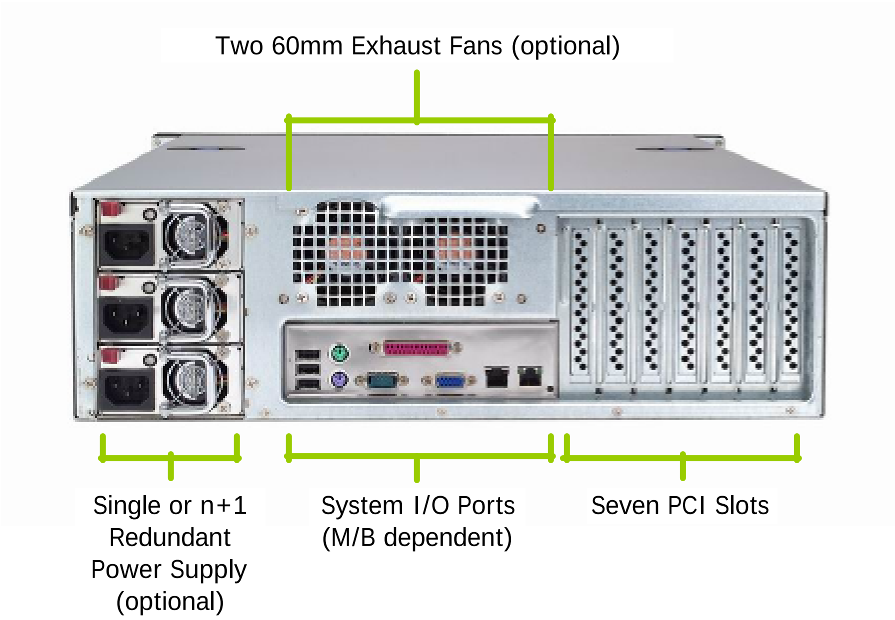


Front Panel Inset



A. HDD Tray Activity LEDs (1-12)
B. USB2.0 Port x2
C. LAN1 and LAN2 LEDs
D. Alarm Mute Button
E. System Reset Button
F. Failure LED
G. System HDD Activity LED
H. Power LED
I. Power Switch

Back Panel


Two 60mm Exhaust Fans (optional)
Single or n+1 Redundant Power Supply (optional)
System I/O Ports (M/B dependent)
Seven PCI Slots

INSTALLATION

For your safety

When deciding on a location for your RM312 rackmount chassis, please take the following into consideration:

Electric Power:

The power cord is what powers on/off your chassis, so try to place the chassis near a power outlet for convenience. Next, be aware of RM312's power rating to avoid overloading its circuits. Then make sure the connections are grounded properly.

Temperature:

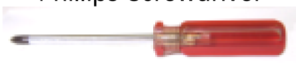
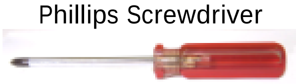
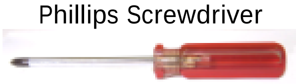
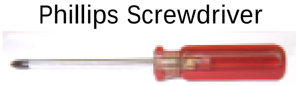
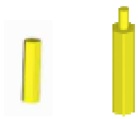
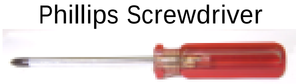
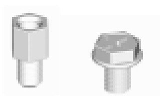
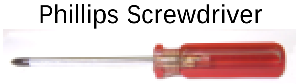
Whenever dealing with an enclosed environment, temperature must be a consideration. Inside the chassis, the temperature will most likely be higher than that of the room it is located in. To make certain that RM312 operates effectively and to prevent possible heat-related problems, be sure to have plenty of ventilation (i.e. additional cooling fans and extra space between devices).

Parts List

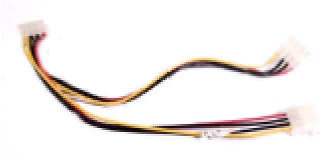
- RM312 Rackmount Chassis (P/N: 90-331200-001)
- Accessory Box (P/N: 84-331210-001)

  - CD-ROM Adapter (P/N: 80-091801-011)

  - Screws and Spacers:

DEVICE	PACKET PART NO.	SCREW IMAGE(S)	INSTALLATION TOOL(S) REQUIRED
HDD Tray	70-000000-149		Phillips Screwdriver 
Internal HDD	70-000000-149		Phillips Screwdriver 
FDD	70-331900-101		Phillips Screwdriver 
Slim CD/DVD-ROM	70-331900-101		Phillips Screwdriver 
Backplane	70-331900-102		Phillips Screwdriver  Nut Driver 
Motherboard	70-331100-101		Phillips Screwdriver  Nut Driver 

- Cables: (refer to Appendix A for further cable options)

CABLE	PART NO.	CABLE APPEARANCE
FDD	26-073123-001	
CD/DVD-ROM	26-073123-004	
HDD 1-to-2	26-073118-007	
Big 4P to big 4P/small 4P	26-113215-001	
Big 4P to big 4P+250mm big 4P	26-113215-003	

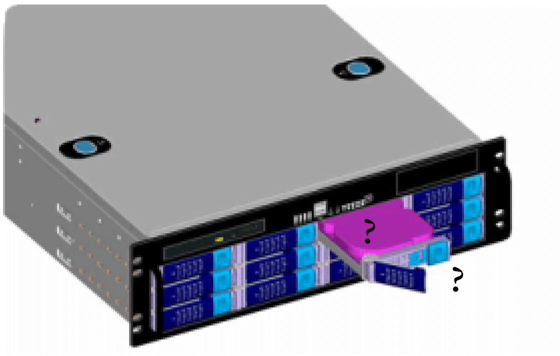
- Optional Items:

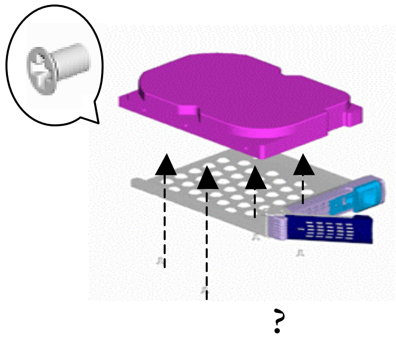
  - 26" General Device Rack Rail Kit

  - 60mm Rear Exhaust Fans x 2

  - Power Cord (refer to Appendix B for plug options)

Installing Hard Disk Drives (HDD)

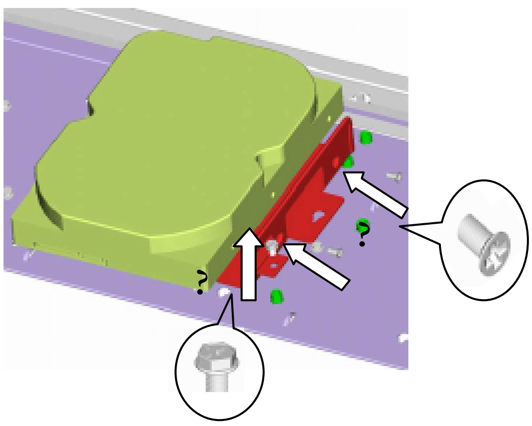




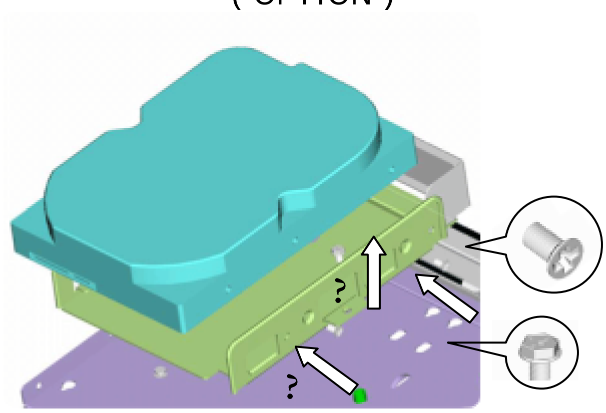
1. Press latch towards the right to open the lever release and slide the HDD tray out of the chassis.
2. Mount the hard drive onto the tray with four screws from the HDD screw packet (P/N: 70-000000-149).
3. Slide the HDD tray back into the case and press the lever back in to secure it.
4. Repeat the procedure for the remaining hard drives.

Installing an Internal HDD

(STANDARD)

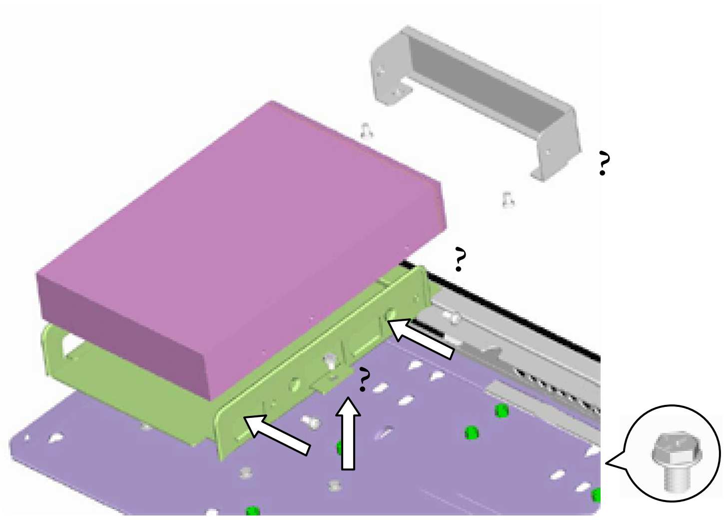


(OPTION)



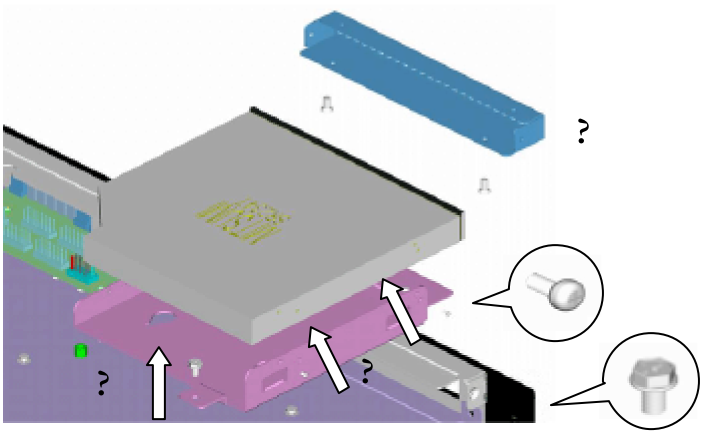
1. Remove the securing screw to slide back and take out the bracket.
2. Attach the HDD to the bracket with four additional screws from the included HDD screw packet (P/N: 70-000000-149).
3. Slide the bracket forward, following the three guide pins, until it fits into place.
4. Reattach the original screw.

Installing a FDD



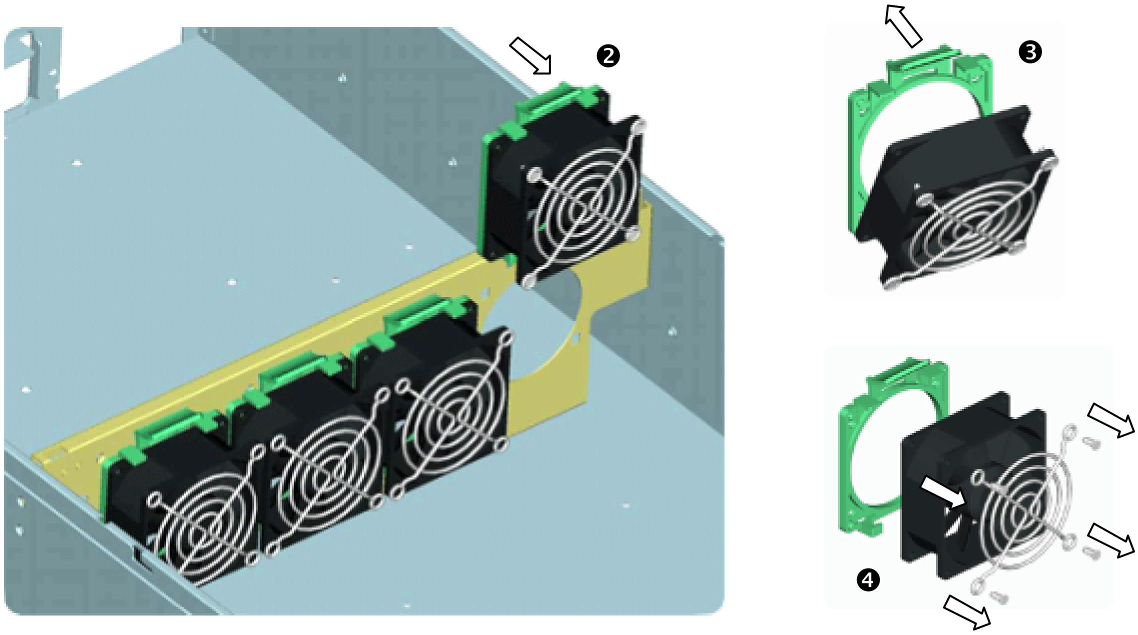
1. Remove the securing screw to move back and take out the bracket.
2. Remove the bracket's FDD cover screws.
3. Attach the FDD onto the bracket with four additional screws from the included FDD screw packet (P/N: 70-331900-101).
4. Slide the bracket forward, following the three guide pins, until it fits into place.
5. Reattach the original securing screw.

Installing a Slim CD/DVD-ROM



1. Release the securing screw to slide back and take out the bracket.
2. Release the CD-ROM's cover screws.
3. Attach the slim CD/DVD-ROM onto the bracket with four additional screws from the included CD-ROM screw packet (P/N:70-331900-101).
4. Slide the bracket forward, following the two guide pins, until it fits into place
5. Reattach the securing screw.

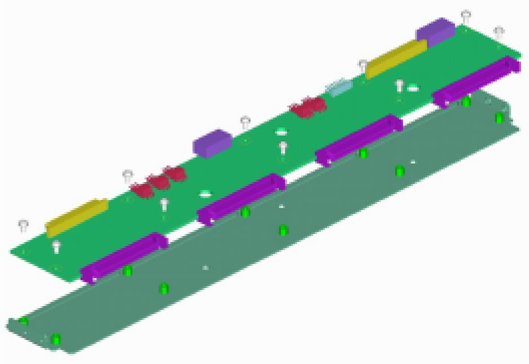
Changing the 80mm System Fans



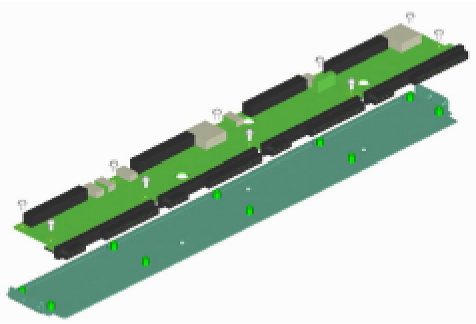
1. Disconnect the fan connector from the backplane.
2. Push the press tab down, then ease the fan and its frame out of the fan bracket.
3. Pull the press tab up to release the fan from the frame.
4. Remove the four screws to take out the finger guard.
5. Replace the faulty fan with a new one.
6. Reassemble, then place back into the fan bracket and reconnect to the backplane.

Installing the Backplane (optional item)

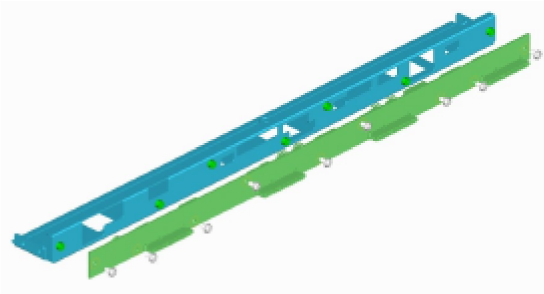
RM312 supports the following three different backplanes: SCSI, IDE, and SATA.



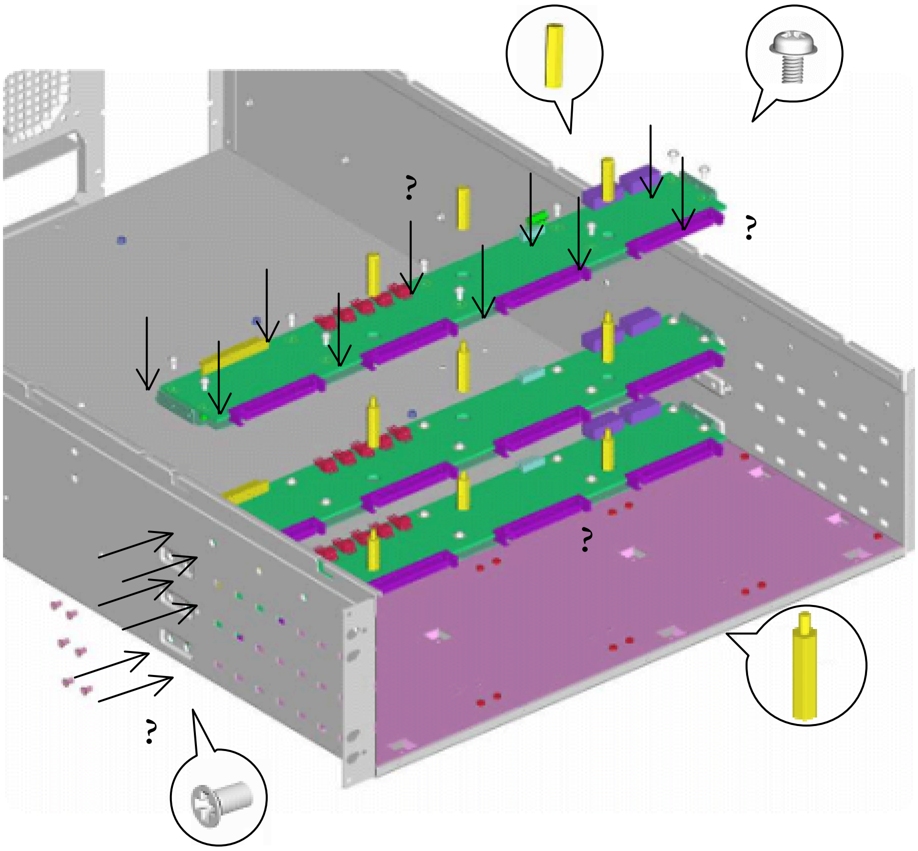
SCSI Backplane Assembly



IDE Backplane Assembly

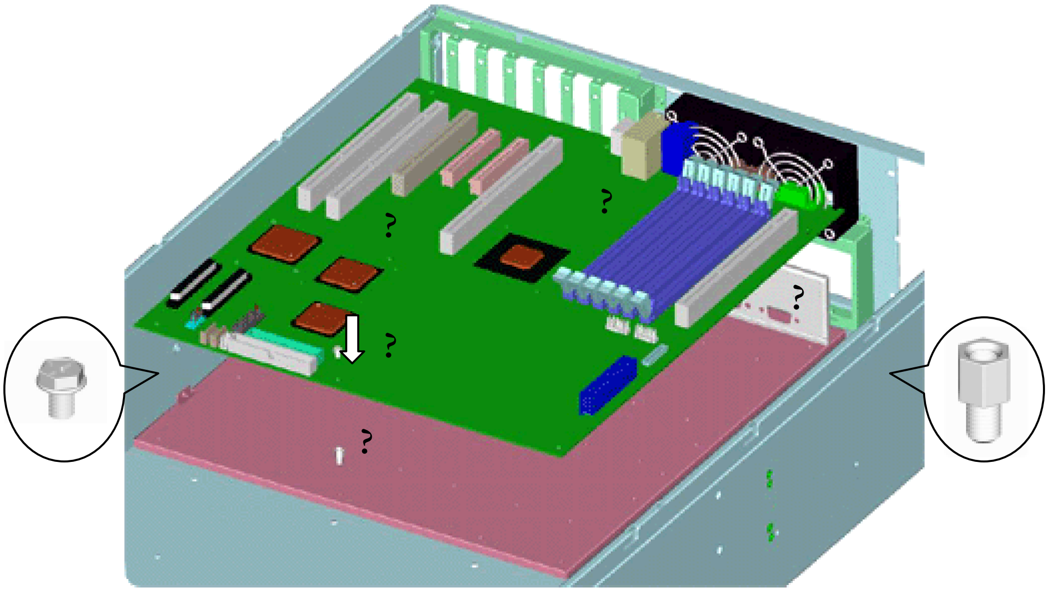


SATA Backplane Assembly



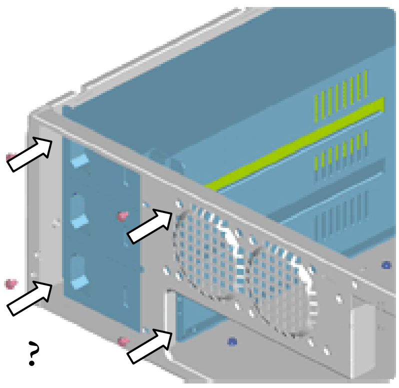
1. With ten screws from the backplane screw packet (P/N: 70-331900-102), attach the backplane to the bracket in the chassis as shown in the diagram.
2. To support a second backplane, affix three hex copper spacer pins.
3. Next secure both ends of the backplane with two screws on both sides of the outer chassis.
4. Repeat steps 1-3 for remaining backplane assemblies.
5. For the topmost assembly, use the three hex copper spacers without the pins to cap it off.
6. Connect the LED cable from backplane (JP1) to LED board. The lower one connects to the 1U LED connector (J1) on the LED board; the middle one to the 2U connector (J2); and the upper one to the 3U connector (J3).
7. Now connect the Big 4p power cable from the PSU to the power connectors (J7 and J8) on the SCSI backplane.
8. Connect the fan connector to the fan pin header of the upper backplane to finish the installation, and check to see the fan sensor is enabled.

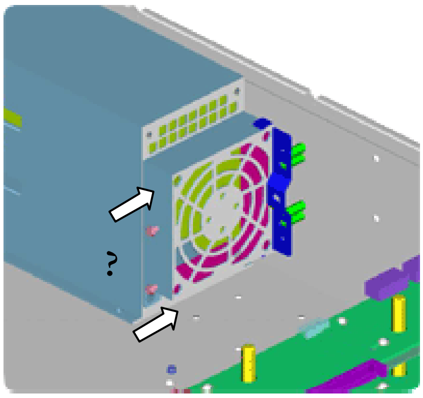
Installing a Motherboard (optional part)



1. Use the included spacers for support from the motherboard screw packet (P/N: 70-331100-101).
2. Install the I/O gasket that came with your motherboard (M/B).
3. Next align the M/B with the chassis and I/O gasket.
4. The edge with the I/O ports should be placed at the back part of the chassis.
5. Secure M/B to the chassis with a screw.

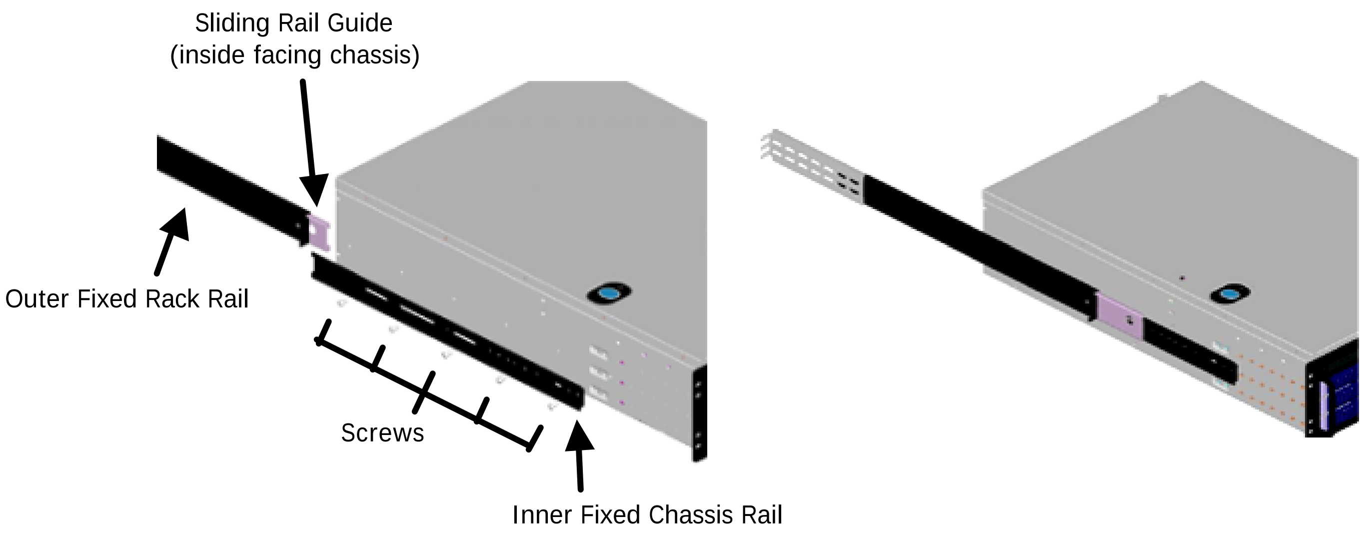
Installing the Power Supply Unit (optional device)





1. Place the power supply unit (PSU) into in the area shown and secure it with four screws.
2. With another two screws, secure it to the other side of the chassis.

Installing the General Rack Rail Kit (optional part)



The optional rack rail kit consists of three main parts: a pair of inner fixed chassis rails, a pair of outer fixed rack rails, and a pair of sliding rail guides. Each pair is identical, so no special attention is necessary to make the parts match either the left or the right side. No parts must be removed from the chassis in order to install the rack rail kit.

1. As they are partially assembled when packaged, you must first disassemble the rails before installing them.

   Remove the inner fixed chassis rail: Pull out until a "click" is heard, then depress the locking tab and pull the inner rail completely out. Do this for both the left and right side rail assemblies.

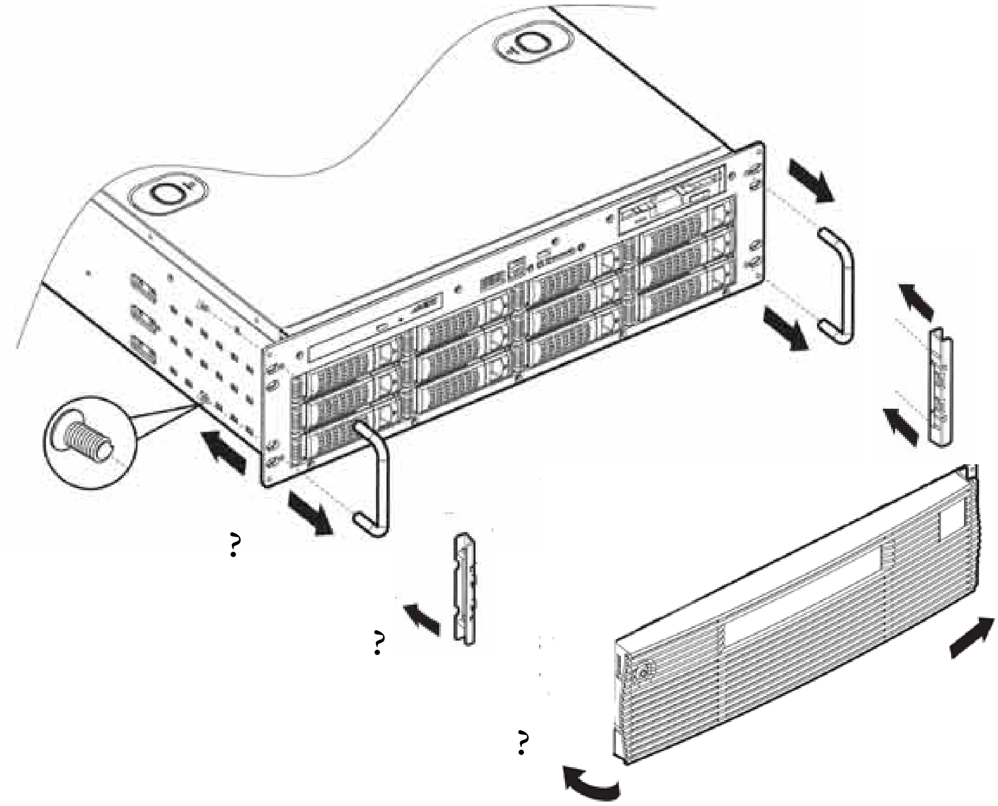
2. Now position the same inner fixed chassis rail along the side of the RM312 chassis. Making sure the holes line up, screw the rail securely to the side of the chassis. Repeat this procedure for the other rail on the other side.

3. Next position the outer fixed rack rail/sliding rail guide assembly at the desired location in the cabinet rack, making sure to keep the sliding rail guide facing the interior of the rack. Screw the assembly securely to the rack using the included brackets. Repeat the procedure for the other side's assembly, making sure to match the exact same height and position of the rail guides facing inward.

4. Line up the rear of the inner fixed chassis rails with the front of the outer fixed rack rails, and slide the chassis towards the rear, keeping even pressure on both sides.

5. When the RM312 has been eased completely into the rack, you should hear the locking tabs "click" to finish the installation.

Installing the Bezel



1. First detach the handles by removing the two screws from each one. Keep handles in the event you may need them again in the future.
2. Next, install the bezel supports and tighten screws securely.
3. Then fit the right side of bezel to its corresponding support and snap into place.

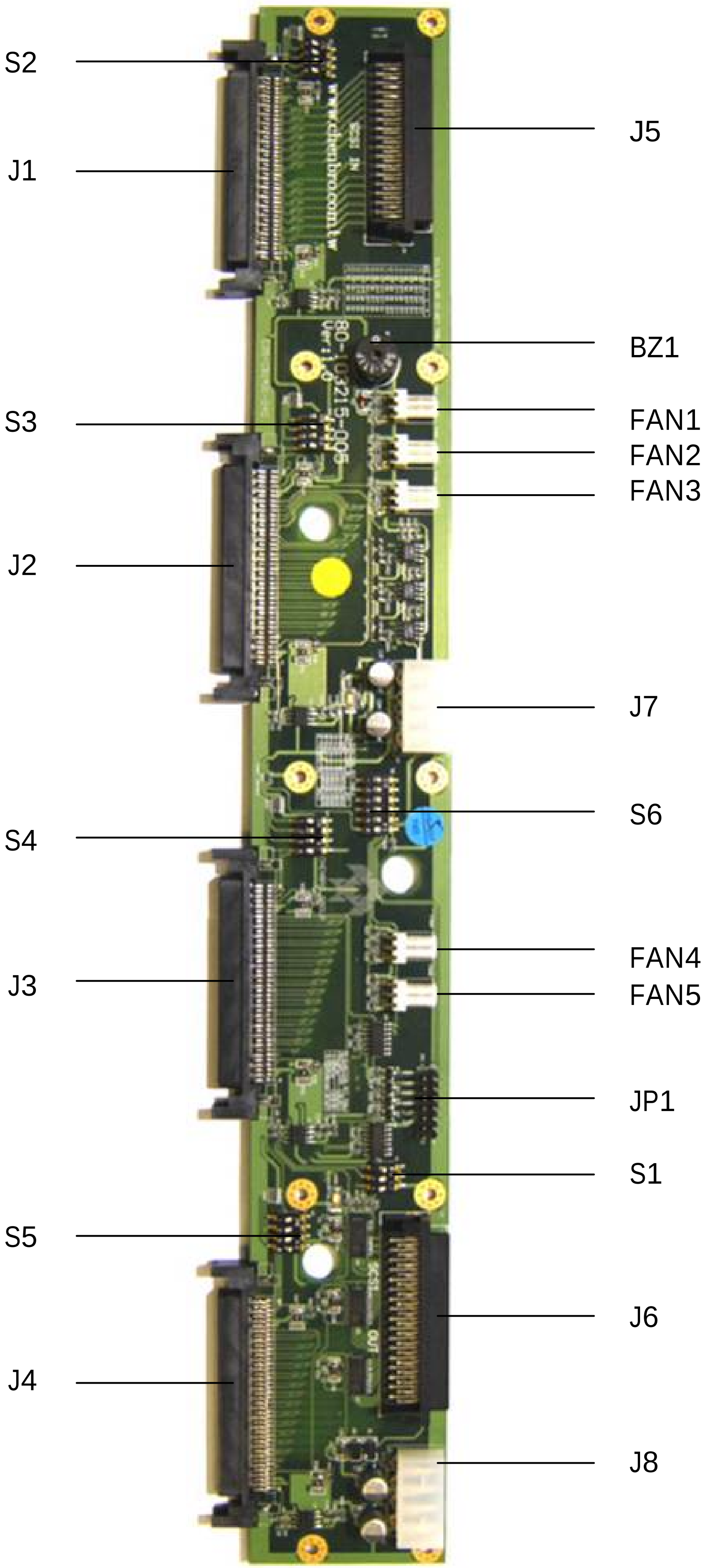
BACKPLANE BOARD

Raid Backplane Supports:

- SCSI interface: Ultra 320/160 backward compatibility
- Hard disk drive 80pin SCA2 Ultra 320/160 backward compatibility
- 4-bay hard disk drive inrush current control for hot-swapping
- SCSI-IN and SCSI-OUT connector (right angle, 68-pin female)
- SCSI on board terminator On/Off function and On/Off LED
- Hard disk drive Delay_Start or Remote_Start mode function
- SCA2 ID setting function default is ID0, ID1, ID2, ID3
- 5pcs external fan speed monitoring, fan failure buzzer alarm, and red LED active function
- Fan disable function
- One on-board temperature sensor with adjustable alarm level (50 C or 60 C); buzzer sounds when temperature rises above alarm level
- 2pcs power connectors in big 4-pin, right angle, D-type
- Power On LED
- 4 external LEDs monitoring for HDD installation, HDD access, and fan overheating fail and buzzer mute connector pin

Backplane Layout

Dimensions: 411.60*51.44*2.4mm



Connectors and Switches

No.	Description	No.	Description
J1	HDD1 SCA2 Connector	S3	HDD2 ID-Set Switch
J2	HDD2 SCA2 Connector	S4	HDD3 ID-Set Switch
J3	HDD3 SCA2 Connector	S5	HDD4 ID-Set Switch
J4	HDD4 SCA2 Connector	S6	Function Set Switch
J5	SCSI in 68pin Connector	FAN1	Fan Connector
J6	SCSI in 68pin Connector	FAN2	Fan Connector
J7	DC Power Input for Big 4P	FAN3	Fan Connector
J8	DC Power Input for Big 4P	FAN4	Fan Connector
JP1	For LED Output Header	FAN5	Fan Connector
S1	Function Set Switch	BZ1	Buzzer
S2	HDD1 ID-Set Switch		

Pin Assignments

S2, S3, S4, S5: SCSI ID Settings

SCSI ID	Position1	Position2	Position3	Position4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On
10	Off	On	Off	On
11	On	On	Off	On
12	Off	Off	On	On
13	On	Off	On	On
14	Off	On	On	On
15	On	On	On	On

- Avoid setting SCSI ID 7 for SCSI drive. It normally hosts the SCSI host adapter.
- The default setting for SCSI drives are from ID0, ID1, ID2, and ID3.

S1: Function Settings*

Switch	Switch On	Switch Off
Switch 1	HDD motor spin up delay mode	Normal
Switch 2	HDD motor spin up remote mode	Normal
Switch 3	Terminator On	Terminator Off

* With this jumper, the user can set the SCSI HDD motor to start in sequence or randomly.

S6: Fan and Temperature Settings

Switch	Switch On	Switch Off
Switch 1	FAN 1 sensor disabled	FAN 1 sensor enabled
Switch 2	FAN 2 sensor disabled	FAN 2 sensor enabled
Switch 3	FAN 3 sensor disabled	FAN 3 sensor enabled
Switch 4	FAN 4 sensor disabled	FAN 4 sensor enabled
Switch 5	FAN 5 sensor disabled	FAN 5 sensor enabled
Switch 6	Temperature Set 50°C	Temperature Set 60°C

JP1: Display Board Signals Output

Pin	Output	Pin	Output
Pin 1	HDD1 LED +	Pin 2	HDD1 LED -
Pin 3	HDD2 LED +	Pin 4	HDD2 LED -
Pin 5	HDD3 LED +	Pin 6	HDD3 LED -
Pin 7	HDD4 LED +	Pin 8	HDD4 LED -
Pin 9	Fail LED +	Pin 10	Fail LED -
Pin 11	Buzzer Mute Switch +	Pin 12	Buzzer Mute Switch -

Fan 1, Fan 2, Fan 3, Fan 4, Fan 5: Connector Pin Assignments

Pin	Description
1	GND
2	VDD
3	SENSOR

J7 and J8: Big 4P Pin Assignments

Pin	Description
1	VDD
2	GND
3	GND
4	VCC

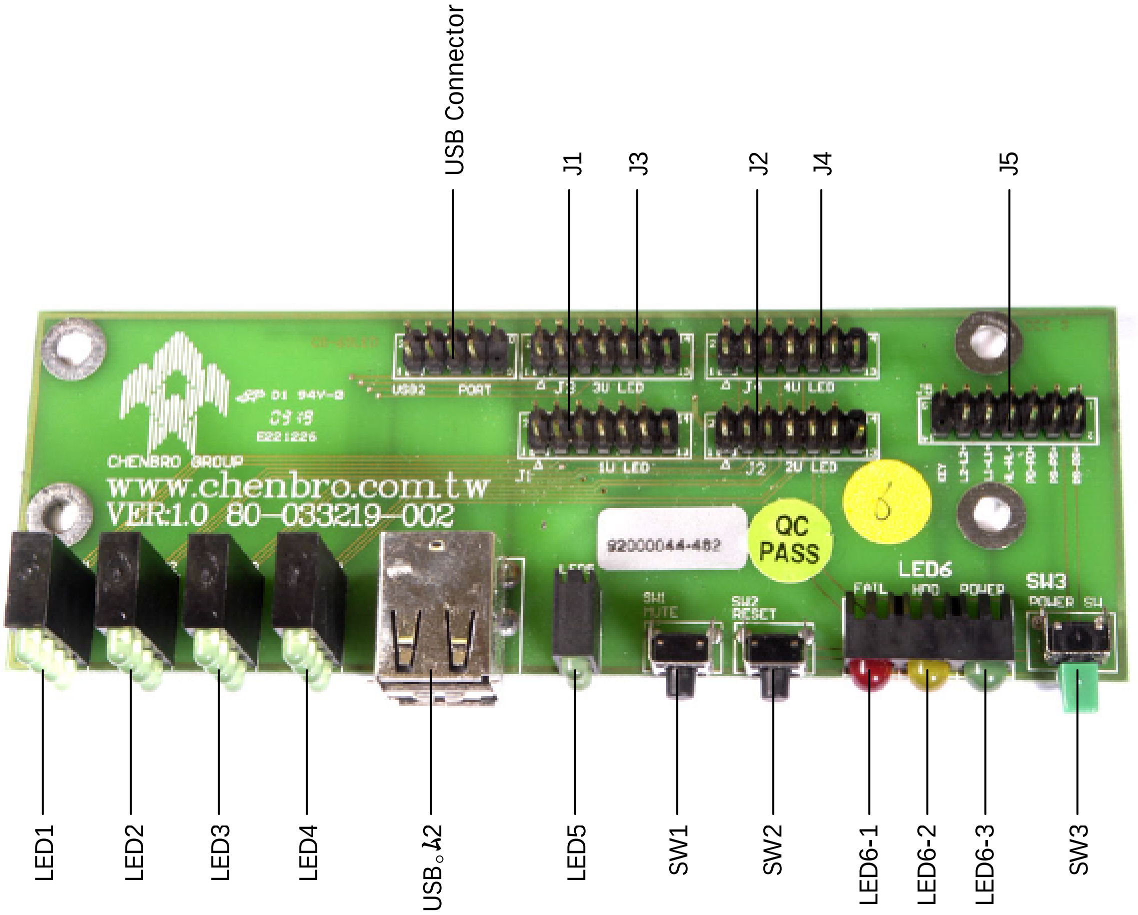
LED Board

Features

- PCB Layers: 2
- 1 HDD power and access LED monitor
- 1 buzzer alarm mute switch
- 1 system reset switch
- 1 system power switch
- 1 power green LED indicator
- 1 local HDD yellow LED indicator
- 1 fails red LED indicator
- 2 USB port
- 2 LAN LED indicator
- 4 connectors for 1U, 2U, 3U, 4U LED boards
- 2 x 10 pin connectors for USB port
- 1 system connector

LED Board Layout

Dimensions: 130.0*45.0*1.6mm



Connectors and Switches

NO.	Description	NO.	Description
J1	1U LED	LED1	HDD1
J2	2U LED	LED2	HDD2
J3	3U LED	LED3	HDD3
J4	4U LED	LED4	HDD4
J5	System	LED5	LAN Activity
SW1	Alarm Mute SW	LED6-1	Fail
SW2	System Reset SW	LED6-2	HDD
SW3	Power SW	LED6-3	Power

Pin Assignments

USB Pin Outs

Pin #	Description	Pin #	Description
1	USB1 Power	2	USB2 Power
3	USB1 Data -	4	USB Data -
5	USB1 Data +	6	USB2 Data +
7	USB1 GND	8	USB2 GND
9	Key	10	None

J1: 1U LED Board Pin Outs

Pin #	Description	Pin #	Description
1	LED11 +	2	GND
3	LED12 +	4	GND
5	LED13 +	6	GND
7	LED14 +	8	GND
9	+5V VCC	10	Fail
11	Mute	12	GND
13	None	14	Key

J2: 2U LED Board Pin Outs

Pin #	Description	Pin #	Description
1	LED21 +	2	GND
3	LED22 +	4	GND
5	LED23 +	6	GND
7	LED24 +	8	GND
9	+5V VCC	10	Fail
11	Mute	12	GND
13	None	14	Key

J3: 3U LED Board Pin Outs

Pin #	Description	Pin #	Description
1	LED31 +	2	GND
3	LED32 +	4	GND
5	LED33 +	6	GND
7	LED34 +	8	GND
9	+5V VCC	10	Fail
11	Mute	12	GND
13	None	14	Key

J4: 4U LED Board Pin Outs

Pin #	Description	Pin #	Description
1	LED41 +	2	GND
3	LED42 +	4	GND
5	LED43 +	6	GND
7	LED44 +	8	GND
9	+5V VCC	10	Fail
11	Mute	12	GND
13	None	14	Key

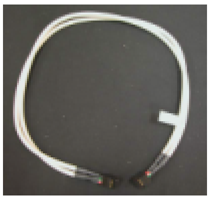
J5: System Pin Outs

Pin #	Description	Pin #	Description
1	Reset	2	Reset GND
3	Power Switch	4	Power Switch GND
5	Power LED +	6	Power LED -
7	HDD LED +	8	HDD LED -
9	LAN1 LED +	10	LAN2 LED -
11	LAN2 LED +	12	LAN2 LED -

APPENDIX A

Optional Cables

USB:

TYPE	LENGTH	PART NO.	CABLE APPEARANCE
Intel Spec	750mm	26-033219-001	
Universal Spec	750mm	26-033219-002	

IDE:

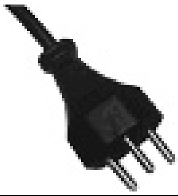
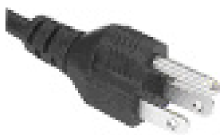
TYPE	LENGTH	PART NO.	CABLE APPEARANCE
ATA-133 IDE	700mm	26-073215-001	
ATA-133 IDE	560mm	26-073118-006	

SATA:

TYPE	LENGTH	PART NO.	CABLE APPEARANCE
Serial ATA	700mm	26-123215-001	
Serial ATA	560mm	26-123215-002	

APPENDIX B

Power Cord Plug Options

COUNTRY / REGION	PART NO.	CONNECTOR
Europe	34-032100-001	
Greece	34-073100-002	
Italy	34-023100-001	
Japan	34-013100-002	
South Africa	34-083100-001	
Taiwan USA	34-013100-001	
UK	34-043100-002	

NOTICES

Chenbro Micom Co., Ltd. reserves the right to make improvements to the products described in this manual at any time. Specifications and features are subject to change without prior notice.

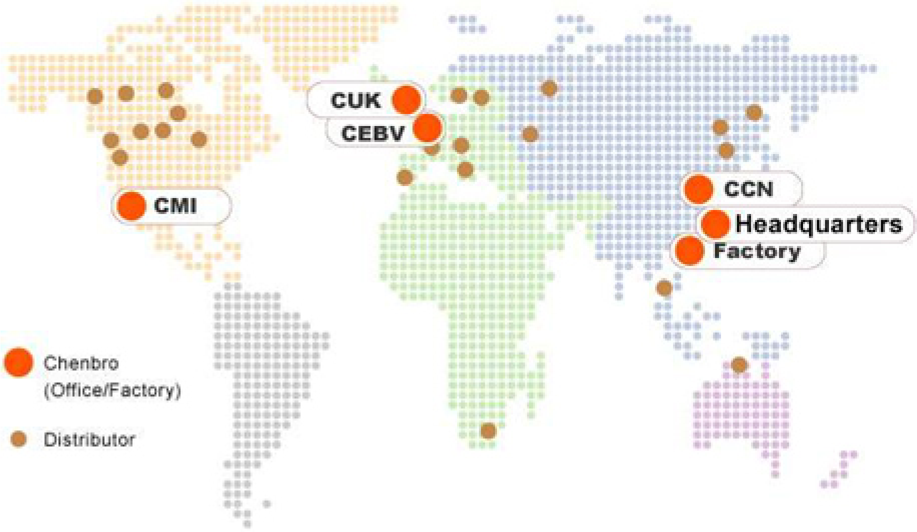
Acknowledgements

Intel® Pentium® 4, Intel® Xeon™, Intel® SE7500WV2 are trademarks of Intel Corporation. AMD Athlon™ MP and AMD Opteron™ are trademarks of Advanced Micro Devices, Inc. 3ware® is a trademark of 3ware Inc. Promise® is a trademark of Promise Technology, Inc. Serverworks™ is a trademark of Serverworks Corporation.

All other product names or trademarks mentioned herein are the properties of their respective owners.

P/N:
Version 1.0

CONTACT INFORMATION



Headquarters

CHENBRO MICOM CO., LTD.
150 Jian Yi Road, 15F
Chung Ho City 235, Taipei County
Taiwan
Tel: +886 (2) 8226-5500
Fax: +886 (2) 8226-5423
E-mail: info@chenbro.com.tw
Website: www.chenbro.com.tw

CHENBRO MICOM (USA) INC.
2260 S. Haven Ave., Unit E
Ontario, CA 91761
USA
Tel: 1-909-947-3200
Fax:1-909-947-4300
E-mail: info@chenbro.com

CHENBRO UK
8 Ledbury Avenue, Davyhulme
Manchester, M41 7AL
UK
Tel: +44 (161) 749-9015
Fax: +44 (161) 749-9219
E-mail: franceslu63@btinternet.com

CHENBRO EUROPE B.V.
De Pinckart 54, 5674 CC Nuenen
The Netherlands
Tel: +31 (40) 295-2045
Fax: +31 (40) 295-2044
E-mail: info@chenbro.nl

CHENBRO CHINA BEIJING
Room 1502-1503 FUDI TOWER
No.29, Yard #9, AnNingZhuang West Road
Haidian District, Beijing 100085
China
Tel: +86 (10) 8274-3036/37/38/39
Fax: +86 (10) 8274-3035
E-mail: mccn@chenbro.com.tw